

IN THE SPECIFICATION

Please replace the paragraphs beginning at page 51 and ending at page 54 with the following paragraphs:

--Example 46.

Preparation of the sugar-modified oligonucleotides

D²
This example illustrates the use of Compound 55 (Figure 8) for the synthesis of a random oligonucleotide having sequence: 5'-d(ATC TCT CCG CTT CCT* TT* C)-3' (SEQ. ID. No. 2 1). In this sequence A, C, G, and T represent the unmodified deoxyribonucleoside and T* represents 5'-C-aminomethylthymidine. The oligonucleotide in this example was synthesized by ABI 394 DNA Synthesizer. All the nucleosides are incorporated by using phosphoramidite chemistry. Incorporation of dA, dC, dG, and T is carried out by using the standard DNA synthesis reagents and the standard procedure. Owing to the steric hindrance of branched substituent at C5' position of thymidine, incorporation of T* is carried out by using longer coupling time (5 minutes). After the synthesis the work-up of synthesized oligonucleotide follows the standard procedure. The crude oligonucleotide was purified by reverse phase C18 column on Beckman HPLC using TEAA buffer (pH 7.0) and acetonitrile as mobile phase. 62.4 ODs of the purified oligonucleotide were obtained. Similarly, the following random sugar-modified oligonucleotides have been synthesized:

5'-C-Branched sugar-modified oligonucleotides:

1. 5'-TTCCTGTCTGATGGCTTC-3' (SEQ ID No. 4 2)
2. 5'-XXCCTGTCTGATGGCTTC-3' (SEQ ID No. 4 3)
3. 5'-TTCCTGTCXGATGGCTTC-3' (SEQ ID No. 4 4)
4. 5'-ATCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 5)
5. 5'-ATCTCTCCGCTTCCTTXXC-3' (SEQ ID No. 2 6)
6. 5'-ATCTCTCCGCTTCCTXXC-3' (SEQ ID No. 2 7)
7. 5'-ATCTCXCCGCTXCCTTTC-3' (SEQ ID No. 2 8)
8. 5'-ATCTCTCCGCTTCCTTYC-3' (SEQ ID No. 2 9)

Inventor: G. Wang
Serial No.: 09/697,545
Art Unit: 1637

PATENT
100848.213001US4

9. 5'-ATCTCTCCGCTTCCTYYC-3' (SEQ ID No. 2 10)
10. 5'-ATCTCTCCGCTTCCTYTYC-3' (SEQ ID No. 2 11)
11. 5'-AYCTCYCCGCTYCCTTYC-3' (SEQ ID No. 2 12)
12. 5'-ATCTCTCCGCTTCCTTZC-3' (SEQ ID No. 2 13)
13. 5'-ATCTCTCCGCTTCCTZZC-3' (SEQ ID No. 2 14)
14. 5'-ATCTCTCCGCTTCCTZTZC-3' (SEQ ID No. 2 15)
15. 5'-ATCTCTCCGCTTCCTTVVC-3' (SEQ ID No. 2 16)
16. 5'-ATCTCTCCGCTTCCTVVVC-3' (SEQ ID No. 2 17)
17. 5'-ATCTCTCCGCTTCCTVTVC-3' (SEQ ID No. 2 18)
18. 5'-ATCTCVCCGCVTCCTTTC-3' (SEQ ID No. 2 19)
19. 5'-AVCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 20)
20. 5'-ATCTCTCCGCTTCCTTWC-3' (SEQ ID No. 2 21)
21. 5'-ATCTCTCCGCTTCCTWWC-3' (SEQ ID No. 2 22)
22. 5'-ATCTCTCCGCTTCCTWTWC-3' (SEQ ID No. 2 23)
23. 5'-ATCTCWCCGCWTCCTTTC-3' (SEQ ID No. 2 24)
24. 5'-AWCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 25)

DS
CD54.

X = 5'-(S)-C-methoxymethylthymidine, Y = 5'-(S)-C-aminomethylthymidine, Z =
5'-(S)-C-cyanomethylthymidine, V = 5'-(S)-C-allylthymidine, and W = 5-(R)-C-allylthymidine.

4'-C-Branched sugar-modified oligonucleotides:

25. 5'-ATCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 5)
26. 5'-ATCTCTCCGCTTCCTTXC-3' (SEQ ID No. 2 26)
27. 5'-ATCTCTCCGCTTCCTXXC-3' (SEQ ID No. 2 27)
28. 5'-ATCTCTCCGCTTCCTXTXC-3' (SEQ ID No. 2 28)
29. 5'-AXCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 29)
30. 5'-ATCTCXCCGCTXCCTTTC-3' (SEQ ID No. 2 30)
31. 5'-ATCTCTCCGCTTCCTTYC-3' (SEQ ID No. 2 31)

- 32. 5'-ATCTCTCCGCTTCCTYXC-3' (SEQ ID No. 2 32)
- 33. 5'-ATCTCTCCGCTTCCYTXC-3' (SEQ ID No. 2 33)
- 34. 5'-AYCTCTCCGCTTCCXTXC-3' (SEQ ID No. 2 34)
- 35. 5'-ATCTCYCCGCTYCCTTTC-3' (SEQ ID No. 2 35)

X = 4'-C-methoxymethylthymidine. Y = 4'-C-aminomethylthymidine.

3'-C-Branched sugar-modified oligonucleotides:

- DB
CD.7.
- 36. 5'-ATCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 5)
 - 37. 5'-ATCTCTCCGCTTCCTTXC-3' (SEQ ID No. 2 36)
 - 38. 5'-ATCTCTCCGCTTCCTXXC-3' (SEQ ID No. 2 37)
 - 39. 5'-ATCTCTCCGCTTCCXTXC-3' (SEQ ID No. 2 38)
 - 40. 5'-ATCTCTCCGCXTCCTTTC-3' (SEQ ID No. 2 39)
 - 41. 5'-AXCTCTCCGCTTCCTTTC-3' (SEQ ID No. 2 40)
 - 42. 5'-ATCTCTCCGCTTCCTTYC-3' (SEQ ID No. 2 41)
 - 43. 5'-ATCTCTCCGCTTCCTYYC-3' (SEQ ID No. 2 42)
 - 44. 5'-ATCTCTCCGCYTCCTTTC-3' (SEQ ID No. 2 43)
 - 45. 5'-AYCTCTCCGCTTCCXTXC-3' (SEQ ID No. 2 44)
 - 46. 5'-ATCTCYCCGCTYCCTTTC-3' (SEQ ID No. 2 45)
 - 47. 5'-ATCTCTCCGCTTCCTTZC-3' (SEQ ID No. 2 46)
 - 48. 5'-ATCTCTCCGCTTCCTZZC-3' (SEQ ID No. 2 47)
 - 49. 5'-ATCTCTCCGCTTCCZTZC-3' (SEQ ID No. 2 48)

X = 3'-C-aminomethylthymidine, Y = 3'-C-methylthymidine,

Z = 3'-C-cyanomethylthymidine. --